		Application No.	Applicant(s)
Notice of Allowability		10/635,392	SHAHABUDDIN ET AL.
		Examiner	Art Unit
		Herng-der Day	2128

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *Amendment received 6/20/07.*

2. ☒ The allowed claim(s) is/are *5-8, 10-13, 18-21, and 23-26, now renumbered as 1-16.*

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some*   c) ☐ None of the:

       1. ☐ Certified copies of the priority documents have been received.

       2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

       3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the
          International Bureau (PCT Rule 17.2(a)).
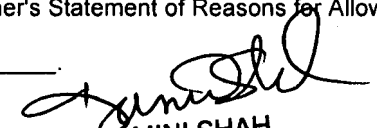
    * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

       1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____ .

    (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of
       Paper No./Mail Date _____ .

    Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO/SB/08),
    Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit
    of Biological Material

5. ☐ Notice of Informal Patent Application

6. ☐ Interview Summary (PTO-413),
    Paper No./Mail Date _____ .

7. ☒ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

KAMINI SHAH
SUPERVISORY PATENT EXAMINER

DETAILED ACTION

1.   This communication is in response to Applicants' Amendment ("Amendment") to Office

Action dated May 11, 2007, filed June 20, 2007, and telephone interview conducted June 21,

2007.

1-1.   Claims 5, 7, 8, 12, 18, 20, 21, and 25 have been amended. Claims 1-3 and 14-16 have

been canceled. Claims 5-8, 10-13, 18-21, and 23-26 are pending.

1-2.   Claims 5-8, 10-13, 18-21, and 23-26 have been examined and allowed.

EXAMINER'S AMENDMENT

2.   An Examiner's amendment to the record appears below. Should the changes and/or

additions be unacceptable to Applicant, an amendment may be filed as provided by 37 CFR

1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the

payment of the issue fee.

3.   Authorization for this Examiner's amendment was given in a telephone interview with

Mr. Daniel L. Dawes (Reg. No.: 27,123) on June 21, 2007.

4.   The claims have been amended as follows:

4-1.   Replace claim 12 as follows:

12.   (currently amended) A virtual real time system for simulating a physical test

environment comprising:

        a master computer module; and

at least one slave computer module communicated to the master computer module and having a clocked operation, which is synchronized to the master computer module; wherein the master computer module and at least one each slave computer module each have a launcher submodule and a deployment submodule, the launcher submodule for launching the deployment submodule and controlling the deployment submodule for synchronized operation with the master computer module, the deployment submodule generating a virtual clock and following commands from the launcher submodule,

where the master launcher submodule sends a stop-tick message to each slave launcher submodule which needs to be synchronized at that clock tick based on slave tick synchronize size and a stop-tick socket call is made to ~~the~~ a candidate slave launcher submodule.

4-2. Replace claim 20 as follows:

20. (currently amended) A method for operating a virtual real time system for simulating a physical test environment comprising:

communicating at least one slave computer module with a master computer module, which at least one slave computer module has a clocked operation and is synchronized to the master computer module, wherein the master computer module and at least one each slave computer module each have a launcher submodule and a deployment submodule;

launching each of the deployment submodules corresponding to the launcher submodules;

controlling each of the deployment submodules by the corresponding launcher submodule for synchronized operation with the master computer module;

generating a virtual clock in the deployment submodule corresponding master computer

module;

executing commands from the corresponding launcher submodule;

where the slave launcher submodule further comprises a slave launcher synch

submodule; and

where the slave launcher submodule, upon receiving a command from the master

launcher submodule, ~~and~~ requesting the corresponding slave deployment submodule via the

slave launcher synch submodule to advance the slave deployment submodule by a predetermined

number of virtual clock ticks and to stop, after which the slave deployment submodule suspends

operation and waits for the slave launcher submodule to resume operation.

4-3. Replace claim 25 as follows:

25.   (currently amended) A method for operating a virtual real time system for simulating a

physical test environment comprising:

communicating at least one slave computer module with a master computer module,

which at least one slave computer module has a clocked operation and is synchronized to the

master computer module, wherein the master computer module and at least one each slave

computer module each have a launcher submodule and a deployment submodule;

launching each of the deployment submodules corresponding to the launcher

submodules;

controlling each of the deployment submodules by the corresponding launcher

submodule for synchronized operation with the master computer module;

generating a virtual clock in the deployment submodule corresponding master computer module;

executing commands from the corresponding launcher submodule; and

sending a stop-tick message from the master launcher submodule to each slave launcher submodule which needs to be synchronized at that clock tick based on slave tick synchronize size and a stop-tick socket call is made to ~~the~~ a candidate slave launcher submodule.

Reasons for Allowance

5.   The following is an Examiner's statement of reasons for allowance:

5-1.   The closest prior art of record discloses:

(1) A hardware and software co-simulation design system (Hellestrand et al., U.S. Patent 6,230,114 B1).

(2) The basic ideas of the HyperReal project (Paoli et al., "HyperReal: A Modular Control Architecture for HRT Systems").

5-2.   Independent claims 5, 7, 8, and 12 are all directed at a virtual real time system for simulating a physical test environment. Virtual real time is defined in the specification at page 4 as "a measure of time resulting by the execution of CPU instructions in a UNIX/LINUX process on a Workstation".

Independent claim 5 identifies the distinct feature, "a test master computer submodule communicating with the master launcher submodule for configuring the system and advancing, starting, stopping, adjusting and monitoring virtual real time, and issuing time related commands to the deployment submodule in the master computer module".

Independent claim 7 identifies the distinct feature, "the slave launcher submodule further comprises a slave launcher synch submodule and where the slave launcher submodule, upon receiving a command from the master launcher submodule, requests the corresponding slave deployment submodule via the slave launcher synch submodule to advance the slave deployment submodule by a predetermined number of virtual clock ticks and to stop, after which the slave deployment submodule suspends operation and waits for the slave launcher submodule to resume operation".

Independent claim 8 identifies the distinct feature, "where master launcher submodule sends a start-tick command to the slave launcher submodule, only if it is prepared to receive the next start-tick command by sending a socket call with a start-tick message".

Independent claim 12 identifies the distinct feature, "where the master launcher submodule sends a stop-tick message to each slave launcher submodule which needs to be synchronized at that clock tick based on slave tick synchronize size and a stop-tick socket call is made to a candidate slave launcher submodule".

Each of the distinct features has not been uncovered in a single teaching, nor would a modification of prior art references be obvious to one of ordinary skill in the art to yield each limitation in the context of the corresponding independent claim. Claims 5, 7, 8, and 12 are deemed allowable.

Dependent claims 6, 10, 11, and 13 are allowable as they depend on allowed independent claim.

5-3. Claims 18-21 and 23-26 are method claims include equivalent limitations as in the system claims 5-8 and 10-13 and are allowable for the same reason as claims 5-8 and 10-13.

6.   Any comments considered necessary by applicant must be submitted no later than the

payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for

Allowance."

Conclusion

7.   Any inquiry concerning this communication or earlier communications from the

Examiner should be directed to Herng-der Day whose telephone number is (571) 272-3777. The

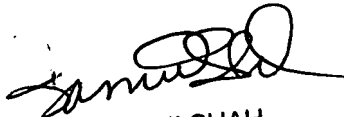Examiner can normally be reached on 9:00 - 17:30.

        Any inquiry of a general nature or relating to the status of this application should be

directed to the TC 2100 Group receptionist: (571) 272-2100.

        If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's

supervisor, Kamini S. Shah can be reached on (571) 272-2279. The fax phone numbers for the

organization where this application or proceeding is assigned is (571) 273-8300.

        Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private

PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Herng-der Day
June 21, 2007   )/.P.

KAMINI SHAH
SUPERVISORY PATENT EXAMINER